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ELASTOMERIC CMOS BASED MICRO ELECTROMECHANICAL VARACTOR

Abstract

A micro electro-mechanical system (MEMS) variable capacitor is described, wherein movable comb electrodes of opposing polarity are fabricated simultaneously on the same substrate and are independently actuated. The electrodes are formed in an interdigitated fashion to maximize capacitance. The MEMS variable capacitor includes CMOS manufacturing steps in combination with elastomeric material selectively used in areas under greatest stress to ensure that the varactor will not fail as a result of stresses that may result in the separation of dielectric material from the conductive elements. The combination of a CMOS process with the conducting elastomeric material between vias increases the overall sidewall area, which provides increased capacitance density.